### INDEX TO VOLUME XX.

(An Asterisk preceding a page number indicates an Illustration.)

Α.	Page
A.	Cane, composition of 62
Page	cost of production 316
Acetylene gas generator249, *250	loading, science of 237
Agee, H. P., what paper mulching	Carbon, decolorizing, from kelp 231
really means	Caum, E. L., bud variation 90
Agriculture, relation to plant patho-	a new cane disease 275
logy	Caustic soda, use in cleaning evapora- tors
Alcohol, manufacture from molasses 23	tors
Alldays & Onions Tractor*304	Centrifugals, discharging of 124
Allen, R. M., further observations on	Hamill separator 42
the use of irrigation water in Ha-	specification of 127
Maii	washing sugar in
by better management 190	Ceramasia sphenophori established in
Ammonia, treatment of nematodes	Queensland
	Chemistry, colloid 50, 351 Citrus-fruit improvement by bud varia-
Ammonification, index to soil fertility. 264	tion
Anomala, see also white grubs.	Clarification in Louisiana 409
Arsenite of soda, preparation of 249	in 1918 64
Aveling & Porter tractor*290 Australia, beet sugar in373	new theory 50
problems in sugar industry 368	report of committee 1918 38
sugar industry in 355	tests at Ewa
varieties in	Colloid chemistry and Fehling's sugar
100000	test
P /	Colón, E. D., Yellow Stripe disease 185
В	Commercial sugar in 1918 65
Badila, see varieties.	Conglomerates, formation of 27
Bagasse, burning as fuel 14	Conveying, effect on sugar 134
burning, charts for efficiency	methods of
*16, *17, *18	sugar, methods of
scientific use as fuel 305	Cos cane mill
Bagging sugar	Cost of production, relation to paper
Beet sugar industry of Australia 373	mulching 2
Better results by better management. 190	Cost of production198, 201, 316
Bindweed, control of 249	Crop returns for 1918
Boilers, comparison of costs 288	Cuba, cost of production in 198, 201
water tube vs. fire tube 285	modern factory in 165
Boiling house data in 1918	Cultivation, cost of
in Louisiana	Curing, report of committee on, 1918. 99
1918 report of committee on 25	Cyanamide calcium to control nema-
Bosse, C., direct macerating and juice	todes
straining system	n
Briggs, O. B., "What is a dollar's worth of fertilizer?" 417	Annual Control of the
worth of fertilizer?"	D 1135, see varieties.
Bull, E. K., high yields of Lahaina. 12	Deerr evaporator, description and ad-
Bumstead & Chandler tractor*298	vantages of
Burgess, P. S., can we predict prob-	Defecation process
able fertility from soil biological data?	Diseases of cane, new
data?	
Burner, type for fuel oil	Diseases of sugar cane, see Yellow
By-products, cane, in Natal 74	Stripe disease.
see bagasse.	Drying, amount per man per hour 130 sugar in Louisiana 414
see molasses.	Dryinid, Chinese parasite of the sugar
see wax.	cane leafhopper
0	-
	E
Calcium eyanamide used to control	Earle, F. S., directions for eradicating
nematodes	Yellow Stripe disease 189

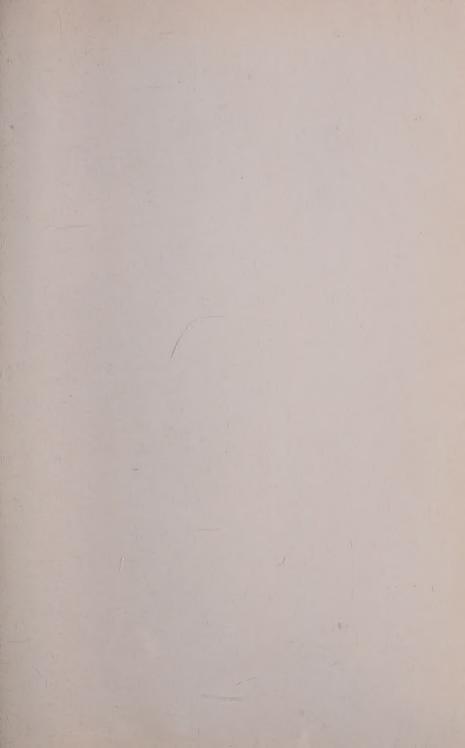
Page	
Earnings, calculation of 97	
Easterby, Harry T., the Australian	muddy juice in Java 207
sugar industry	report of committee 1918 38
Eckart, C. F., interpretation of paper	Fischer, Martin H., note on the colloid chemistry of Fehling's sugar test 351
Folwarms see nometodes	Florida nometada iniuma ta augus
Efficiency in surer manufacture 100	Florida, nematode injury to sugar
Electrification of goods 240	cane
Evaporators clapping of 95	Powert Vohala Percenta
Evaporator Deerr 279 *280	Forest, Kohala Reserve
Evaporation in Louisiana	Forests, native
in 1918 64	
1918, report of committee on 25	
Ewa Plantation Co., clarification tests. 39	Formaldehyde, used to control nema-
curing and marketing	todes
108, 112, 114, 127,	todes
134, 137, 139, 142, 144, 161	dustrial alcohol from molasses 23
mill data 60	Frazier, J. O., velocity of flow through
	Frazier, J. O., velocity of flow through tubular cane juice heaters 308 Freeland, E. C., the preparation of
Experiments, Hakalau Plantation Co.	Freeland, E. C., the preparation of
Henchula Dientetien featilisation	
Honomy profitable limit of fertili-	Fuel, bagasse used scientifically 305 results burning bagasse 14
	oil, method of burning 209
McBryde, amount of fertilizer to	on, memor or surning.
apply	
McBryde, fertilizer plant require-	G
ments	
mixed fertilizer vs. nitrate of soda 242	Gas, poisonous, use for fighting insects 11
paper mulching 4	Gallworms, see nematodes.
variety test at Hawi 391	Geerligs, H. C. Prinsen, measures taken
at Walluku 395	in Java to prevent deterioration
Experiment Station, work proposed 75	of stored sugar
	storage of sugar during the rainy
F.	season in Java
77	C
ractory emclency in 1918 69	proposed
	Glycerine from molasses 381
Fehling's sugar test, relation to colloid	Graining sugar, seeding method of 201 Granulation of sugar in Louisiana 414
chemistry	Granulation of sugar in Louisiana 414
Fermentation, organisms causing de-	Green manuring, experiments in 76
terioration of sugar in storage 84	
Fertility, relation to biological data 251	H
Fertilization, amount to apply382, 387	11
amount to apply to plant cane 329	***
amount to apply on ratoons and	H 109, see varieties.
plant cane	H 146, see varieties.
	H 240, see varieties. H 456, see varieties.
cost of applying	H 458, see varieties.
economic application of	H 460, see varieties.
first season	H 462 goo verioties
formulas for	H 463, see varieties. H 464, see varieties.
formulas for	H 464, see varieties. H 465. see varieties.
formulas for	H 464, see varieties. H 465. see varieties. H 466, see varieties.
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties.
formulas for         22, 419           Hakalau experiment         242           Honolulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar pro-         sugar pro-	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H awaii, sugar yields 1918
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. Hawaii, sugar yields 1918 379 Hawaiian Agricultural Co., curing and
formulas for         22, 419           Hakalau experiment         242           Honolulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar production         31           method of purchase         417	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H awaii, sugar yields 1918 379 Hawaiian Agricultural Co., curing and marketing 106, 112, 114, 122.
formulas for         22, 419           Hakalau experiment         242           Honolulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar production         31           method of purchase         417           mixed versus nitrate of soda         242	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H awaii, sugar yields 1918 379 Hawaiian Agricultural Co., curing and marketing 106, 112, 114, 122.
formulas for         22, 419           Hakalau experiment         242           Honolulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar production         31           method of purchase         417           mixed versus nitrate of soda         242           number of doses         32	H 464, see varieties. H 465, see varieties. H 467, see varieties. H 467, see varieties. Hawaii, sugar yields 1918
formulas for         22, 419           Hakalau experiment         242           Honoiulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar production         31           method of purchase         417           mixed versus nitrate of soda         242           number of doses         32           plant cane         382	H 464, see varieties. H 465, see varieties. H 467, see varieties. H 467, see varieties. Hawaii, sugar yields 1918
formulas for         22, 419           Hakalau experiment         242           Honoiulu Plantation         382           Honomu experiment         320           in Hawaii, relation to sugar production         31           method of purchase         417           mixed versus nitrate of soda         242           number of doses         32           plant cane         382           plant requirements         333           practice with paper mulching         9	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H 487, see varieties. H 488, see varieties. H 489, see varieties. H 489, see varieties. H 480, see varieties.
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H awaii, sugar yields 1918
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H awaii, sugar yields 1918
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H 487, see varieties. H 488, see varieties. H 489, see varieties. H 481, see varieties. 184, see varieties. 185, see varieties. 185, see varieties. 186, see varieties. 187, see v
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H 487, see varieties. H 488, see varieties. H 489, see varieties. H 481, see varieties. H 481, see varieties. H 481, see varieties.  181, see varieties. 181,
formulas for	H 464, see varieties. H 465, see varieties. H 466, see varieties. H 467, see varieties. H 487, see varieties. H 488, see varieties. H 489, see varieties. H 481, see varieties. 184, see varieties. 185, see varieties. 185, see varieties. 186, see varieties. 187, see v
	Earnings, calculation of

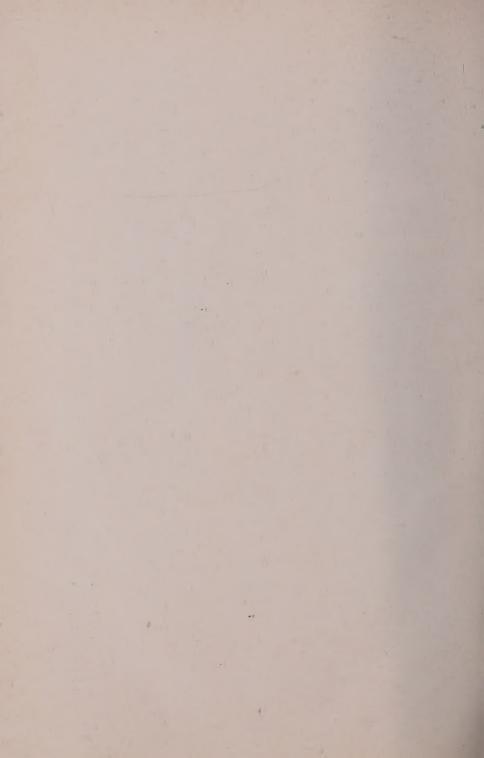
Hawaiian Sugar Co., mill data 60	prevention of deterioration of
Hawaiian Sugar Co., mill data 60 Hawi Mill & Plantation Co., curing	sugar in ,
and marketing 100	storage of sugar in 220
105, 111, 114, 119, 122, 123, 126, 128, 131, 133, 135, 138, 143, 145, 147, 151, 154, 158, 162	sugar production in 177
126, 128, 131, 133, 135, 138,	John Fowler & Co. tractor*299
143, 145, 147, 151, 154, 158, 162	Johnson, Horace, practical method of comparing the results obtained
mill data 60	comparing the results obtained
variety test at	when burning bagasse as fuel. 14
Hakalau Plantation Co., experiments	proposed experiments in value of
on kind of fertilizer 242	press cake
curing and marketing 100,	Juice, effect on purity of molasses 88
103, 111, 115, 118, 123, 125,	flow in tubular heaters 308
130, 133, 138, 141, 143, 145, 148, 149, 151, 153, 156, 158, 162	mixed, determination of solids in
mill data 60	straining system52, *53, *56
mill data	straining system
Hamill centrifugal separator*41, 42	К
Hapai Ko, science of	IV.
Harvesting, cost of 198	77 11 0 0 0 0 0
Harvesting, cost of	Kaeleku Sugar Co. mill data 60
tion	Kahuku Plant. Co. mill data 60 Kaiwiki Sugar Co. mill data 60
tion	Kainuku Fiant. Co. mili data. 60 Kainuki Sugar Co. mili data. 60 Kekaha Sugar Co. mili data. 60 Kelp used for making carbon. 231 Kilauea Sugar Plant. Co. mili data. 60 Kinabuly Sugar. Co. mili data. 60
Heterodera radicicola in Florida 170	Kelp used for making carbon 231
Hilo Sugar Co., curing and market-	Kilauea Sugar Plant. Co., mill data. 60
ing100, 102,	Kipahulu Sugar Co. mill data 60
113, 115, 118, 121, 123, 125,	Kohala forest318, *318, *319, *320
127, 130, 132, 134, 137, 142,	Kohala Sugar Co., curing and mar-
ing	keting
	keting
paper mulching experiment 4 Hind, R. R., direct macerating and	143, 145, 148, 149, 151, 158, 162
juice straining system	
juice straining system	Koloa Sugar Co. curing and mar-
Honolulu Plantation Co., fertilization	keting
of plant cane	101, 109, 112, 117, 122, 127,
mill data 60	129, 131, 134, 135, 140, 142,
Honomu Sugar Co., curing and mar-	144, 146, 150, 152, 155, 159, 161
Honomu Sugar Co., curing and mar- keting	mill data 60
Honomu Sugar Co., curing and mar- keting	Krafft, A., direct macerating and juice
Honomu Sugar Co., curing and marketing	mm data
Honomu Sugar Co., curing and mar- keting	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and mar- keting	Krafft, A., direct macerating and juice
Honomu Sugar Co., curing and mar- keting	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and mar- keting	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system   52     L
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Krafft, A., direct macerating and juice straining system
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia
Honomu Sugar Co., curing and marketing	Labor, in Australia   365
Honomu Sugar Co., curing and marketing	Labor, in Australia

Page	Page
power equipment in 408	Nitrogen, forms on irrigated planta-
transportation of cane in 406	tions
Lovett, A. L., nematode gallworms 338	value of
	Norris, R. S., Annual Synopsis of Mill
M	Data, 1918 60
TAT.	curing and marketing 99
	determination of the efficiency of
McBryde Sugar Co., curing and mar-	the maceration 181
keting 109,	
115, 117, 120, 124, 127, 134,	0
137, 140, 142, 144, 146, 147, 150	U
keting	
fertilizer experiment No. 1 329	Oahu Sugar Co., curing and mar-
mill data 60	brokin m
mill data	100, 112, 114, 117, 120, 122,
Maceration, determination of the effi-	124, 127, 129, 131, 134, 139,
ciency of	124, 127, 129, 131, 134, 139, 144, 146, 150, 152, 154, 157, 161
Macerating system	H 146 at 550 feet elevation 84
Maceration, determination of the effi- ciency of 181 Macerating system 52, *53, *56 Macrocystis pyrifera used for carbon 232	high yields of Lahaina 12
Makee Sugar Co., mill data 60	mill data 60
	Oil see firel oil.
Mann tractor . *294 Manufacturing, cost of	Olsa Sugar Co., curing and market- ing101, 110, 113, 115, 117, 123, 124, 130, 132, 136, 142, 144, 150, 155, 157, 159, 161
Manufacturing, cost of	ing101, 110, 113, 115,
progress in Louisiana 406	117, 123, 124, 130, 132, 136,
progress in Louisiana	142, 144, 150, 155, 157, 159, 161
Martin tractor	paper for mulching purposes 10
Massecuites, cooling in crystallizer 100	mill data 60
Massecuites, cooling in crystallizer 100 drying of101, 110, 113, 115	Onomea Sugar Co., curing and mar-
Maui Agricultural Co., bindweed on. 248	keting103, 113, 115, 118,
curing and marketing	125, 128, 130, 132, 134, 137,
106, 116, 119, 122, 126, 129,	keting103, 113, 115, 118, 125, 128, 130, 132, 134, 137, 142, 145, 148, 151, 153, 159, 162
106, 116, 119, 122, 126, 129, 131, 133, 139, 143, 146, 147, 152, 154, 155, 156, 158, 160, 163	mill data 60
152, 154, 155, 156, 158, 160, 163	Oranges bud variation of 90
manufacture of cement 28	Owen, W. L., fermenting organisms
mill data 60	Owen, W. L., fermenting organisms which cause the deterioration of
mill data 60 Milling during 1918 63	cane sugar in storage 84
work in Australia	
work in Australia	_
work in Australia	P
work in Australia	P
work in Australia	Paauhau Sugar Plant. Co., curing and
work in Australia	Paauhau Sugar Plant. Co., curing and
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane 415, *415, *416 Mexico, sugar industry of 343 Molasses, final, in 1918 65 final, relation to purity of juice 88 used for alcohol 23 utilization of 367	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 151, 153, 158, 162 mill data
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 151, 153, 158, 162 mill data
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data
work in Australia 363 in Lowisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane. 415, *415, *416 Mexico, sugar industry of 343 Molasses, final, in 1918 65 final, relation to purity of juice 88 used for alcohol 23 utilization of 367 used to make glycerine 381 Muir, F., leathopper infestation in plant cane 380 use of insecticides against left	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means 2
work in Australia 363 in Lowisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane. 415, *415, *416 Mexico, sugar industry of 343 Molasses, final, in 1918 65 final, relation to purity of juice 88 used for alcohol 23 utilization of 367 used to make glycerine 381 Muir, F., leathopper infestation in plant cane 380 use of insecticides against left	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means 2
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophorise Pseudogonatopus hospes. 229
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane. 415, *415, *416 Mexico, sugar industry of 343 Molasses, final, in 1918. 65 final, relation to purity of juice. 88 used for alcohol 23 utilization of 367 used to make glycerine. 381 Muir, F., leafhopper infestation in plant cane 380 use of insecticides against leaf hoppers 171 Mulching, see paper mulching. Murray, G. F., acetylene gas generator	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 141, 156, 143, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophori. see Pseudogonatopus hospes. 229 Peck, S. S., clarification of juice—a
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means 2 Parasites, see Ceramasia sphenophori. see Pseudogonatopus hospes 239 Peck, S. S., clarification of juice—a
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means 60 Parasites, see Ceramasia sphenophoric see Pseudogonatopus hospes. 22 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer ap-
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane. 415, *415, *416 Mexico, sugar industry of 343 Molasses, final, in 1918. 65 final, relation to purity of juice. 88 used for alcohol 23 utilization of 367 used to make glycerine. 381 Muir, F., leafhopper infestation in plant cane 380 use of insecticides against leaf hoppers 171 Mulching, see paper mulching. Murray, G. F., acetylene gas generator	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophori. see Pseudogonatopus hospes. 229 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 200
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophorise Pseudogonatopus hospes. 229 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 20 report of Committee on Evapera-
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 141, 155, 158, 162 mill data. 60 Paper mulching at Olaa . 55 cost of
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophori. see Pseudogonatopus hospes 229 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application . 20 report of Committee on Evaperation and boiling 25 Pepeekeo Sugar Co., acetylene gas
work in Australia 363 in Louvisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 124, 136, 143, 148, 151, 153, 154, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 124, 136, 143, 148, 151, 153, 154, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 124, 136, 143, 148, 151, 153, 154, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa. 5 cost of
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 141, 153, 158, 162 mill data. 60  Paper mulching at Olaa. 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophori. see Pseudogonatopus hospes. 229 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application. 20 report of Committee on Evaperation and boiling. 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing. 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 mill data. Phosphorie acid, as reverted phosphare . 34
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60  Paper mulching at Olaa. 5 cost of 5 Hilo Sugar Co. 4 what it really means. 229  Parasites, see Ceramaxia sphenophori. see Pseudogonatopus hospes. 239  Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 20 report of Committee on Evaperation and boiling 20 report of Committee on Evaperation and boiling 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 mill data 60 Phosphoric acid, as reverted phosphate 7 results of experiments on 33
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60  Paper mulching at Olaa. 5 cost of 5 Hilo Sugar Co. 4 what it really means. 229  Parasites, see Ceramaxia sphenophori. see Pseudogonatopus hospes. 239  Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 20 report of Committee on Evaperation and boiling 20 report of Committee on Evaperation and boiling 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 mill data 60 Phosphoric acid, as reverted phosphate 7 results of experiments on 33
work in Australia 363 in Lourisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60  Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 22 Parasites, see *Ceramasia sphenophori. see *Pseudogonatopus hospes. 239 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 20 report of Committee on Evaporation and boiling 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing. 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 mill data 60 Phosphoric acid, as reverted phosphate . 34 results of experiments on 33 value of supplementary ap-
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophorise Pseudogonatopus hospes. 239 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 50 report of Committee on Evaperation and boiling 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing, 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 will data 60 Phosphoric acid, as reverted phosphate 7 results of experiments on 33 value of 242, 333 value of supplementary applications 320
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing. 104, 113, 115, 118, 121, 123, 125, 139, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data
work in Australia 363 in Louisiana 406 Mill Data, 1918, Annual Synopsis of 60 new cane	Paauhau Sugar Plant. Co., curing and marketing, 104, 113, 115, 118, 121, 123, 125, 130, 133, 134, 136, 143, 148, 151, 153, 158, 162 mill data. 60 Paper mulching at Olaa 5 cost of 5 Hilo Sugar Co. 4 what it really means. 2 Parasites, see Ceramasia sphenophorise Pseudogonatopus hospes. 239 Peck, S. S., clarification of juice—a new theory 50 economic method of fertilizer application 50 report of Committee on Evaperation and boiling 25 Pepeekeo Sugar Co., acetylene gas generator used at 249 curing and marketing, 103, 110, 115, 118, 123, 125, 132, 134, 137, 145, 151, 153, 155, 157, 162 will data 60 Phosphoric acid, as reverted phosphate 7 results of experiments on 33 value of 242, 333 value of supplementary applications 320

Page	1'age
Pioneer Mill Co., Ltd., curing and mar-	Steam sterilization of soil 272
keting107, 114, 122,	Sterilization of soil by steam 272
124, 129, 131, 135, 136, 141,	Stockett, A. W., the potash situation. 215
124, 129, 131, 135, 136, 141, 146, 147, 152, 154, 157, 161, 163	Storage of sugar before bagging 141
mill data 60 Piperoux, Rene P., Deerr evaporator 279	cause of caking
Piperoux, Rene P., Deerr evaporator. 279	deterioration of 84
factors entering into the choice	elevating bags by hoists 156
of boilers for the sugar mills 285	in Java
Plant food requirements 168	piling of bags155, 157
cane, infested by leafhopper 380	Stringd Tin eag varieties
cane, fertilization of 382	Striped Tip, see varieties. "Suffolk Punch" tractor*293
cane, reightzation of 362	Committee the transfer of the contract of the
pathology, relation to agriculture 239	Sugar, see raw sugar.
Planting, cost of 198	cane, mainland quarantine 169
Poison gas to control insects 239	practical importance of bud
used for weed control 208	variation 90
Porto Rico, cost of production in	variation
eradication of Yellow Stripe dis-	graining
eradication of Yellow Stripe dis-	industry in Australia 355
ease in	in Mexico 343
white grubs in	mixing and cooling of 136
Potach cituation 915	production in Java 177
Potash situation	source of dark lumps 137
Down conjugate in Louisian 100	source of data tumps
Power equipments in Louisiana 408	source of dark lumps 137 stored, prevention of deteriora-
Press cake, value of	tion
Pressure, hydraulic application of 415	test by Fehling's method 351
Pseudogonatopus hospes, notes on	Sulphate of ammonia, method of ap-
	pilcamon 20
	potash, method of application 20
•	Superphosphate of lime, method of
Q	application 20
	Sweating, causes and remedies 161
Quarantine for sugar cane / 169	Swezey, O. H., notes on the Chinese
Queensland borer parasite 74	Dryinid parasite of the sugar cane
sugar industry of 355	leafhopper
Sugar muchicy of the transfer of the	teathopper
-	PM .
R	
K	T
	Tetraphosphate. description of 214
Raw sugar, valuation of	
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406
Raw sugar, valuation of	Tractor, Fordson       178, *180         Tractors, British agricultural       289         motor       297         steam       290         Transportation of cane       406         Tubes for boilers       285
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         Australia         360           Badila at Hawi         391           Badila at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         Australia         360           Badila at Hawi         391           Badila at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         Australia         360           Badila at Hawi         391           Badila at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         Australia         360           Badila at Hawi         391           Badila at Hawi         395           D 1135 at Hawi         395           effect on evaporating         26           H 109 at Wailuku         395           H 109 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         391           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 146 diseased         13
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 146 diseased         13           H 240 at Hawi         391
Raw sugar, valuation of	Tractor, Fordson
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         Australia           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 at Hawi         291           H 146 diseased         13           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 at Hawi         391           H 146 at Hawi         391           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 458 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 at Hawi         391           H 146 at Hawi         391           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 456 at Wailuku         395           H 460 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 426 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 458 at Wailuku         395           H 460 at Wailuku         395           H 463 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 426 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 458 at Wailuku         395           H 460 at Wailuku         395           H 463 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 at Hawi         391           H 146 at Hawi         391           H 456 at Oalu Sugar Co         *84           H 456 at Wailuku         395           H 458 at Wailuku         395           H 460 at Wailuku         395           H 463 at Wailuku         395           H 464 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Hawi         391           D 1135 at Hawi         395           offect on evaporating         26           H 109 at Wailuku         395           H 109 at Hawi         391           H 246 at Hawi         391           H 245 at Hawi         391           H 246 at Hawi         391           H 246 at Wailuku         395           H 456 at Wailuku         395           H 460 at Wailuku         395           H 464 at Wailuku         395           H 465 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson.         178, *180           Tractors, British agricultural         289           motor         297           Steam         290           Transportation of cane.         406           Tubes for boilers         285           V           Varieties of cane—         360           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 diseased         13           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 458 at Wailuku         395           H 460 at Wailuku         395           H 464 at Wailuku         395           H 465 at Wailuku         395           H 466 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 146 at Hawi         291           H 146 at Hawi         391           H 146 at Hawi         391           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 458 at Wailuku         395           H 460 at Wailuku         395           H 463 at Wailuku         395           H 463 at Wailuku         395           H 466 at Wailuku         395           H 467 at Wailuku         395
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 463 at Wailuku         395           H 463 at Wailuku         395           H 464 at Wailuku         395           H 465 at Wailuku         395           H 466 at Wailuku         395           H 467 at
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—
Raw sugar, valuation of	Tractor, Fordson         178, *180           Tractors, British agricultural         289           motor         297           steam         290           Transportation of cane         406           Tubes for boilers         285           V           Varieties of cane—           Australia         360           Badila at Hawi         391           Badila at Wailuku         395           D 1135 at Hawi         391           D 1135 at Wailuku         395           effect on evaporating         26           H 109 at Wailuku         395           H 109 at Hawi         391           H 146 at Hawi         391           H 240 at Hawi         391           H 456 at Oahu Sugar Co         *84           H 456 at Wailuku         395           H 463 at Wailuku         395           H 463 at Wailuku         395           H 464 at Wailuku         395           H 465 at Wailuku         395           H 466 at Wailuku         395           H 467 at

Page	Page
Striped Tip at Hawi 391	Wax from sugar cane 399
test at Wailuku	Weed control by poison 208
Yellow Caledonia at Hawi 391	
Yellow Tip at Hawi 391	"Wells & Steevens" tractor*297
Verret, J. A., fertilization and sugar	"Wellington" tractor
production in Hawaii 31	White filtering funnel *38
	White grubs in Porto Rico 169
W	White, H. Laurence, determination of
**	suspended solids in mixed juice 37
	"Will Hawaii Stay in the Race" 73
Wages in Australia 365	Wyles tractor
Waiakea Mill Co., mill data 60	Wiles tractor
Waialua Agr. Co., mill data 60	
Waianae Co., mill data 60	V
Wailuku Sugar Co., cleaning of evapo-	
rators at 25	
curing and marketing	Yellow Caledonia, see varieties.
	Stripe disease in Porto Rico: 168, 185
100, 107, 112, 116, 124, 126,	measures for eradi-
129, 133, 135, 136, 139, 141,	cating
144, 146, 150, 154, 156, 161, 163	Tip, see varieties,
mill data 60	
variety test at	Yields of cane, effect of irrigation on. 78
Waimanalo Sugar Co., mill data 60	of sugar by islands, 1918 379
Waimea Sugar Mill Co., mill data., 60	irrigated plantations, 1918 379
Waipio substation irrigation experi-	per acre relation to paper
ments	mulching 2
Walsh & Clark cable tractor*302	unirrigated plantations, 1918 379
Water, see irrigation.	
	-
wash, source of	Z
method of applying 121	
Watersheds, forests as	
167, 173, *173, *174, *175, *176	
Watkins, W. K., manufacture of cement	an active decolorizing carbon from
at Paia 28	
Watson, J. R., control of root knot by	Zitkowski, H. E., the seeding method
calcium cyanamide 400	





JANUARY, 1919 F. No. 1

### The an Planter, Record matiant

WHAT PAPER MULCHING REALLY MEANS BURNING BAGASSE AS FUEL ECONOMIC METHOD OF FERTILIZER APPLICATION INDUSTRIAL ALCOHOL FROM MOLASSES EVAPORATION AND BOILING MANUFACTURE OF CEMENT AT PAIA FERTILIZATION IN HAWAII DETERMINATION OF SUSPENDED SOLIDS CLARIFICATION AND FILTERING ANNUAL SYNOPSIS OF MILL DATA, 1918



ORGAN OF THE EXPERIMENT STATION OF THE HAWAHAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON P. S. BURGESS
OTTO H. SWEZEY R. S. NORRIS

Programme Progra	age.
The Hawaiian Chemists' Association	1
Suspended Solids in Mixed Juice	1
What Paper Mulching Really Means	2
Fighting Insects with Poison Gas	11
High Yields from Lahaina Cane	12
A Practical Method of Comparing the Results Obtained when Burn-	
ing Bagasse as Fuel	14
Economic Method of Fertilizer Application	20
The Manufacture of Industrial Alcohol from Molasses	23
Report of Committee on Evaporation and Boiling	25
The Manufacture of Cement at Paia	28
Fertilization and Sugar Production in Hawaii	31
Determination of Suspended Solids in Mixed Juice	37
Report on Clarification and Filtering	33
Direct Macerating and Juice-Straining System	52
Annual Synopsis of Mill Data, 1918	60

### **OFFICERS FOR 1919**

E. H.	WODEHOUSE. MAIN SANDARD WAR AND AND President
JOHN	WATERHOUSE . Marting. 123 why . Marchay . Vice-President
R. D.	MEAD. No. 1990. 350 . 1. 1991. Secretary and Treasurer
J. W.	WALDRONAuditor

### **TRUSTEES FOR 1919**

E. F.	BISHOP BERT THE PROPERTY PROPERTY.	E. D.	TENNEY
J. M.	DOWSETT WAS INCOMEDIATED	J. W.	WALDRON
A. W.	T. BOTTOMLEY OF THE PARTY OF	JOHN	WATERHOUSE
JOHN	HIND: A CHEVY DESCRIPTION OF	E. H.	WODEHOUSE (A)
707 0	CHETTOTT		

### EXPERIMENT STATION COMMITTEE

J. W. WALDRON, Chairman

A. GARTLEY			T.	H.	PETRIE
W. M. GIFFA	RD 👵	area of the Salar	G.	P.	WILCOX
C. R. HEMEN	WAY		₹.	N.	S. WILLIAMS

H. B. CAMPBELL, Secretary

### **EXPERIMENT STATION STAFF**

H. P. AGEEDirector
R. C. L. PERKINS. Consulting Entomologist OTTO H. SWEZEY. Entomologist F. MUIR Entomologist P. H. TIMBERLAKE. Assistant Entomologist F. K. WILLIAMS. Assistant Entomologist
H. L. LYON. Botany and Forestry, in cl ADOLF HOLM Supt. Forest Nurseries E. L. CAUM. Assistant Pathologist M. L. HARTMANN. Assistant Agriculturist
R. S. NORRIS
P. S. BURGESS
J. A. VERRET
W. E. R. POTTEE

arge

FEBRUARY, 1919

No. 2

### Tawaiian Planters Record

USE OF IRRIGATION WATER

DETERIORATION OF SUGAR IN STORAGE

RELATION OF PURITY OF JUICE TO THAT OF FINAL MOLASSES

BUD VARIATION—IN ORANGES AND SUGAR CANE
CURING AND MARKETING—A COMMITTEE REPORT
A MODERN CUBAN FACTORY



ORGAN OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON OTTO H. SWEZEY R. S. NORRIS

P. S. BURGESS

### OFFICERS FOR 1919

E. H.	WODEHOUSEPre	sident
JOHN	WATERHOUSEVice-Pre	sident
R. D.	MEAD	asurer
J. W.	WALDRON,A	uditor

### TRUSTEES FOR 1919 And

E. F. BISHOP
A. W. T. BOTTOMLEY
J. M. DOWSETT
JOHN HIND

E. D. TENNEY
J. W. WALDEON
JOHN WATERHOUSE
E. H. WODEHOUSE

### EXPERIMENT STATION COMMITTEE

J. W. WALDRON, Chairman

A. GARTLEY
W. M. GIFFARD
C. R. HEMENWAY

T. H. PETRIE G. P. WILCOX J. N. S. WILLIAMS

/H. B. CAMPBELL, Secretary

### **EXPERIMENT STATION STAFF**

H. P. AGEE
R. C. L. PERKINS
OTTO H. SWEZEY Entomologist
F. MUIR Entomologist
P. H. TIMBERLAKE
F. X. WILLIAMS Assistant Entomologist
H. L. LYON Botany and Forestry, in charge
ADOLF HOLM
E. L. CAUM
M. L. HARTMANN
R. S. NORRIS Sugar Technologist
W. R. McALLEP Asst. Sugar Technologist
A. BRODIE Assistant Chemist
P. S. BURGESS Chemist ( N. Aller W.
F. R. WERTHMUELLER Assistant Chemist
L. L. LYNCH Assistant Chemist
C. E. WARRINER Assistant Chemist
J. F. MELANPHY Fertilizer Sampler
J. A. VERRETAgriculturist
R. S. THURSTON Associate Agriculturist
R. M. ALLEN Assistant Agriculturist
Y. KUTSUNAI Assistant Agriculturist
W. R. R. POTTERIllustrator
H. B. CAMPBELL Business Agent

	Page
Will Hawaii Stay in the Race?	73
Sugar Cane Beetle Borer Parasite in Queensland	74
Cane By-Products in Natal	74
Additional Experiment Station Work Proposed at Annual Meeting	75
Further Observations on the Use of Irrigation Water in Hawaii	77
The Fermenting Organisms Which Cause the Deterioration of Cane	
Sugar in Storage	84
The Portable Plantation Sawmill	87
Effect of the Purity of the Juice on the Purity of the Final Molasses	88
Bud Variation; A Review of U.S.D.A. Bulletin 623, "Citrus-Fruit	
Improvement: A Study of Bud Variation in the Washington	
Navel Orange," with Reference to the Practical Importance of	
Bud Variation in the Sugar Cane	90
Earnings Required to Render Improvements Profitable	97
Report of Committee on Curing and Marketing	99
A Modern Cuban Factory	165

Sum Call III

VOL. XX

MARCH, 1919

No. 3

## Tamatian Planters Accord

WHITE GRUBS IN PORTO RICO
NEMATODE INJURY IN FLORIDA
THE USE OF INSECTICIDES
PRESERVE OUR NATIVE FORESTS
EFFICIENCY OF THE MACERATION
YELLOW STRIPE DISEASE IN PORTO RICO
METHOD OF BURNING FUEL OIL
STORAGE OF SUGAR IN JAVA
VALUATION OF RAW SUGAR



ORGAN OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON P. S. BURGESS
OTTO H. SWEZEY R. S. NORRIS

### OFFICERS FOR 1919

E. H.	WODEHGUSEPresident
JOHN	WATERHOUSE
R. D.	MEAD Secretary and Treasurer
J. W.	WALDRONAuditor

### TRUSTEES FOR 1919

E. F. BISHOP
A. W. T. BOTTOMLEY
J. M. DOWSETT
JOHN HIND

E. D. TENNEY
J. W. WALDRON
JOHN WATERHOUSE
E. H. WODEHOUSE

### **EXPERIMENT STATION COMMITTEE**

J. W. WALDRON, Chairman

A. GARTLEY
W. M. GIFFARD
C. R. HEMENWAY

T. H. PETRIE G. P. WILCOX J. N. S. WILLIAMS

rge

D. A. MEEK, Secretary

### **EXPERIMENT STATION STAFF**

H. P. AGEEDirector
R. C. L. PERKINS
F. MUIR Entomologist
P. H. TIMBERLAKE Assistant Entomologist
F. X. WILLIAMS Assistant Entomologist
H. L. LYON Botany and Forestry, in cha
E. L. CAUMAssistant Pathologist
ADOLF HOLM
E. J. MCOKLAR
M. L. HARTMANN Asst. in Pineapple Investigat:
R. S. NORRIS Sugar Technologist
W. R. McALLEP
A. BRODIE
P. S. BURGESS Chemist
F. R. WERTHMUELLER Assistant Chemist
L. L. LYNCH Assistant Chemist
C. E. WARRINER Assistant Chemist
J. F. MELANPHY Fertilizer Sampler
J. A. VERRETAgriculturist
R. S. THURSTON Associate Agriculturist
R. M. ALLEN Assistant Agriculturist
Y. KUTSUNAI Assistant Agriculturist
L. T. LYMAN Assistant Agriculturist
W. L. S. WILLIAMS Assistant Agriculturist
W. R. R. POTTERIllustrator
D. A. MEEK

	Page.
Our Watershed Forests	167
Yellow Stripe Disease in Porto Rico	168
Does the Insurance Cost Too Much?	168
Mainland Quarantine Against Sugar Cane from Hawaii	
White Grubs in Porto Rico	169
Nematode Injury to Sugar Cane in Florida	170
The Use of Insecticides Against Leafhoppers	171
Preserve the Remnants of Our Native Forests	173
Sugar Production in Java	177
The Fordson Tractor-What Will it Achieve on the Sugar Planta-	
tion?	178
Determination of the Efficiency of the Maceration	181
Choice of Material for Isolating Inflorescences in Selection Work	184
Eradication of the Yellow Stripe Disease of Sugar Cane	185
Better Results by Better Management	190
The Seeding Method of Graining Sugar	201
Filtration of Muddy Juice in Java Sugar Factories Using the Defe-	
cation Process	
Weed Control by Poison	
Method of Burning Fuel Oil	
Tetraphosphate	
The Potash Situation	
Storage of Sugar During the Rainy Season in Java	
Valuation of Raw Sugar	
On the Preparation of an Active Decolorizing Carbon from Kelp	231

APRIL, 1919 No. 4



THE DRYINID PARASITE OF THE LEAFHOPPER MIXED FERTILIZER VS. NITRATE OF SODA A DANGEROUS BINDWEED NEMATODE GALLWORMS A NEW CANE DISEASE



ORGAN OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON P. S. BURGESS OTTO H. SWEZEY R. S. NORRIS

### OFFICERS FOR 1919

E. H.	WODEHOUSE	 	President
JOHN	WATERHOUSE	 	Vice-President
R. D.	MEAD	 S	ecretary and Treasurer
J. W.	WALDRON	 	Auditor

### TRUSTEES FOR 1919

E. F. BISHOP	E. D.	TENNEY
A. W. T. BOTTOMLEY	J. W.	WALDRON
J. M. DOWSETT	JOHN	WATEREOUSE
JOHN HIND' Y	E. H.	WODEHOUSE
W. O. SMITH		

### EXPERIMENT STATION COMMITTEE

J. W. WALDRON, Chairman

A. GARTLEY C. B. HEMENWAY

T. H. PETRIE G. P. WILCOX J. N. S. WOLFLAN

D. A. MEEK, Secretary

The Art County of Marie County of the County
H. P. AGEEDirector
R. C. L. PERKINS
P. H. TIMBERLAKE
H. L. LYON
E. J. MOOKLAR
R. S. NORRIS
P. S. BURGESS
J. A. VERRET. Agriculturist B. S. THURSTON Associate Agriculturist B. M. ALLEN Assistant Agriculturist J. KUTSUNAI Assistant Agriculturist L. T. LYMAN Assistant Agriculturist W. L. S. WILLIAMS Assistant Agriculturist Assistant Agriculturist
W. R. R. POTTERIllustrator
D. A. MEEK Chief Clerk

The state of the s	age
The Science of Hapai Ko	237
Poison Gas and Insect Control	239
Plant Pathology.—Its Relation to Agriculture	239
Notes on the Chinese Dryinid Parasite of the Sugar-Cane Leafhopper	239
Mixed Fertilizer Versus Nitrate of Soda	242
A Dangerous Bindweed	248
Acetylene Gas Generator for Laboratory	249
Can We Predict Probable Fertility from Soil Biological Data'	251
Nematode Gallworms or Eelworms	267
A New Cane Disease	275
The Deerr Evaporator	
The Nitrate Market	284
Water Tube vs. Fire Tube	285
British Agricultural Tractors	289
The Scientific Use of Bagasse as Fuel	
Velocity of Flow Through Tubular Cane Juico Heaters	308

MAY, 1919

No. 5

# The Pawaiian Planters' Record

### THE KOHALA FOREST

PROFITABLE LIMIT OF FERTILIZATION
FERTILIZER—AMOUNT TO APPLY TO PLANT CANE
FERTILIZER—PLANT REQUIREMENTS
DETERIORATION OF STORED SUGAR
THE SUGAR INDUSTRY IN MEXICO
THE AUSTRALIAN SUGAR INDUSTRY



ORGAN OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON P, S. BURGESS
OTTO H. SWEZEY R. S. NORRIS

J. A. VERRET

Associate Editors

### OFFICERS FOR 1919

E. H.	WODEHOUSE		President
JOHN	WATERHOUSE		Vice-President
R. D.	MEAD	Secre	tary and Treasurer
J. W.	WALDRON	والمرافرة المرافعة والمرافعة والمرافعة والمرافعة	Auditor

### TRUSTEES FOR 1919

E. F. BISHOP

A. W. T. BOTTOMLEY

J. W. WALDRON

J. M. DOWSETT

JOHN WATERHOUSE

FOUN WIND

W. O. SMITH

### EXPERIMENT STATION COMMITTEE

J. W. WALDRON, Chairman

A. GARTLEY C. R. HEMENWAY T. H. PETRIE G. P. WILCOX

J. N. S. WILLIAMS

D. A. MEEK, Secretary

### EXPERIMENT STATION STAFF

H, P. AGEEDirector
R. C. L. PERKINS. Consulting Entomologist OTTO H. SWEZEY. Entomologist F. MUIR Entomologist P. H. TIMBERLAKE. Assistant Entomologist
F. X. WILLIAMSAssistant Entomologist
H. L. LYON. Botany and Forestry, in charg E. L. CAUM. Assistant Pathologist ADOLF HOLM Supt. Forest Nurseries E. J. MOOKLAR. Asst. in Pineapple Investigation M. L. HARTMANN. Asst. in Pineapple Investigation
R. S. NORRIS
P. S. BURGESS. Chemist F. B. WERTHMUELLER. Assistant Chemist L. L. LYNCH. Assistant Chemist C. E. WARRINER. Assistant Chemist J. F. MELANPHY. Fertilizer Sampler
J. A. VERRET. Agriculturist  R. S. THURSTON. Associate Agriculturist  E. M. ALLEN. Assistant Agriculturist  Y. KUTSUNAI Assistant Agriculturist  W. L. S. WILLIAMS Assistant Agriculturist  G. B. GRANT Assistant Agriculturist  W. R. R. POTTER. Illustrator
W. P. ALEXANDERAssistant to Director
D. A. MEEK

	Page
Backed by Capital, Guided by Science	315
Sugar Cane Its Cost of Production	
The Kohala Forest	318
The Profitable Limit of Fertilization	
Fertilizer—Amount to Apply to Plant Cane	329
Fertilizer—Plant Requirements	333
Nematode Galls on Sugar Cane	337
Measures Taken in Java to Prevent Deterioration of Stored Sugar	338
The Sugar Industry in Mexico	343
The Electrification of Seeds	348
Note on the Colloid Chemistry of Fehling's Sugar Test	351
The Australian Sugar Industry	355



JUNE, 1919

No. 6

Aamaiia Manada Keesard

LEAFHOPPER IN PLANT CANE FERTILIZING PLANT CANE FIRST SEASON FERTILIZATION VARIETY TEST AT HAW! BADILA & H-456 AT WAILUKU MANUFACTURE IN LOUISIANA



ORGAN OF THE EXPERIMENT STATION OF THE HAWAIIAN SUGAR PLANTERS' ASSOCIATION

H. L. LYON OTTO H. SWEZEY R. S. NORRIS

P. S. BURGESS

### OFFICERS FOR 1919

E. H.	WODEHOUSEPreside	nt
JOHN	WATERHOUSE	nt
R. D.	MEAD and Treasure	er
J. W.	WALDRONAudit	or

### TRUSTEES FOR 1919

E. F. BISHOF E. D. TENNEY
A. W. T. BOTTOMLEY
J. W. WALDRON
J. M. DOWSETT JOHN WATERHOUSE
JOHN HIND
W. O. SMITH

### EXPERIMENT STATION COMMITTEE

J. W. WALDRON, Chairman

A. GARTLEY C. R. HEMENWAY T. H. PETRIE G. P. WILCOX

ge

J. N. S. WILLIAMS

D. A. MEEK, Secretary

### EXPERIMENT STATION STAFF

H. P. AGEEDirector
R. C. L. PERKINS,Consulting Entomologist
OTTO H. SWEZEYEntomologist
F. MUIR Entomologist
P. H. TIMBERLAKEAssistant Entomologist
F. X. WILLIAMS Assistant Entomologist
H. L. LYON in char
E. L. CAUM Pathologist
ADOLF HOLMSupt. Forest Nurseries
E. J. MOOKLARAsst. in Pineapple Investigation
M. L. HARTMANN
R. S. NORRIS Sugar Technologist
W. R. McALLEP Acting Sugar Technologist
A. BRODIE Assistant Chemist
P. S. BURGESS Chemist
F. B. WERTHMUELLER Assistant Chemist
I., L. LYNCH Assistant Chemist
C. E. WARBINEB Assistant Chemist
J. F. MELANPHY
J. A. VERRET Agriculturist
R. S. THURSTON Associate Agriculturist
R. M. ALLEN Assistant Agriculturist
Y. KUTSUNAI Assistant Agriculturist
L. T. LYMAN Assistant Agriculturist
W. L. S. WILLIAMS Assistant Agriculturist
G. B. GRANT Assistant Agriculturist
W. R. B. POTTERIllustrator
W. P. ALEXANDER Assistant to Director
D. A. MEEK

	Page
Official Crop Returns	379
Leafhopper Infestation in Plant Cane	380
Glycerine from Molasses	381
Fertilizing Plant Cane	382
First Season Fertilization	387
Striped Tip Good Under Drought Conditions	391
Badila and H 456 Show Best in Wailuku Test	. 395
Wax from the Sugar Cane	399
Control of Root-Knot by Calcium Cyanamide	. 400
Manufacturing Progress in Louisiana	406
A New Cane Mill	. 415
"What Is a Dollar's Worth of Fertilizer?"	. 417

